Adaptation and Speciation in the Fall Webworm. T. Hi-
in Japan 6,000 yen (≈ 26.12).

This small volume is a notable contribution to biological
literature. Although concerned primarily with the biology
and ecology of the fall webworm, Hyphantria cunea (Drury), it
contains information of great interest to a wide range of bi-
ologists. While presenting the results of original research on
behavior, population dynamics, ecological adaptations and
biosystematics relating to the fall webworm, the authors
have ably reviewed relevant literature and incorporated
their information into the bodies of knowledge relating to
these functional aspects of biology. Actually, the book con-
ists of 8 chapters, each under the authorship of one or two
of the five contributors. Despite multiple authorship the
book is well organized and, where discussion in one chapter
touches on experimental work reported in another, chapter
references are provided. This eliminates much potential du-
pllication and provides the reader with ready access to per-
tinent data.

Although the fall webworm has been the subject of nu-
merous scientific and technical publications, these have
tended to confuse rather than to clarify knowledge of this
common North American insect. As a result of work done
by the contributors to this book we now have a coherent
body of knowledge that will stimulate and greatly facilitate
future research on the fall webworm. At first sight it is ironic
that the species is now one of the best known representatives
of the North American insect fauna only because it was in-
advertently introduced into Japan, Korea, and central Eu-
rope. In these countries the fall webworm quickly became
an important pest. This stimulated interest in the species
and resulted, particularly in Japan, in an extensive, con-
certed research program. In a broader sense the Japanese
and European work on the fall webworm might be better
viewed as a kind of trade-off for the extensive work by
American entomologists on insects of the European and
Japanese faunas. As a result of similarly motivated research
of American entomologists such Old World species as the
European corn borer, Ostrinia nubilalis (Hübner), and the
Japanese beetle, Popillia japonica Newman, are now among
the world's best known insects.

Besides a very considerable amount of field and some ex-
perimental work in North America much experimental re-
search on behavior, life cycle program and photoperiod re-
sponse was conducted in Japan utilizing both Japanese and
imported North American stock. The increase, dispersal,
and subsequent population fluctuations of the fall webworm
in Japan are discussed and compared with data obtained
from American and Central European sources. As expected
of an invading exotic pest species, populations were ob-
erved to be much higher and more damaging than those en-
countered in North America.

Because of a personal involvement with exotic species of
insects that have invaded the United States, I find Chapters
1 and 7 of greatest interest. In Chapter 1, Drs. Umeya and
Ito summarize information concerning the discovery of the
fall webworm in Japan and speculate on how the species
gained entry. There can be no question that entry was a con-
sequence of American military operations, as the first colo-
nies were found 3 months after the end of the war. From
associated information it is believed that colonies must have
been present in Tokyo during the summer of 1945 with the
first stock arriving as pupae "dropped inadvertently with the
packing of bombs or with propaganda bills."

Students of biosystematics and speciation will find Chap-
ter 8 of great interest. The authors Masaki and Ito conclude
that what is known in North America as the fall webworm
consists of 3 major population entities, 2 of which are sym-
patic over much of the U.S. and Canada east of the Great
Plains. The 3rd is restricted to British Columbia and north-
western U.S. extending southward well into California. This
form tends to be intermediate between the other 2 but is
perceived as belonging to the eastern form referred to as "Ma-
lacosoma type" or typical Hyphantria cunea (Drury). The
2nd is called the "black headed type" in reference to the
black head capsule of the larvae and corresponds to H. textor
Harris. The authors report results of experimental studies
and laboratory as well as field observations that confirm ear-
er conclusions that the two forms exhibit no reliable struc-
tural or color differences. Also, they found no evidence of
reproductive incompatibility, and intermediate hybrid pop-
ulations were readily obtained in the laboratory. However,
on the basis of behavior, preferred hosts, habitat preference,
absence of intermediates in nature and many other charac-
teristics, the 2 forms behave as separate entities. In view of
these considerations and their sympatric distribution they
conclude that "the two webworm types are [to be] regarded
as distinct species."

In order to insure that the results of their research reached
as wide an audience as possible the authors published this
book in English and despite an occasional error or unusual
phrase, the English is remarkably good. It is unquestionably
a valuable contribution, worthy of an audience extending
beyond the relatively small number of entomologists who
are directly concerned with work on the fall webworm.

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